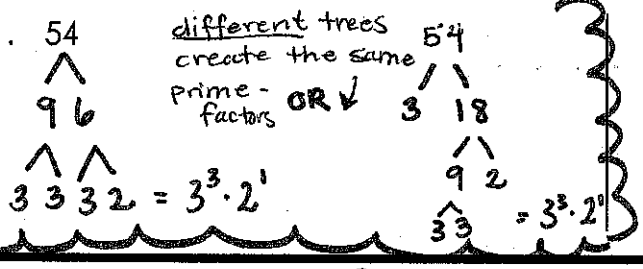
Name: Class notes Date: 01/16/18 per 1/4

RADICALS ARE IN SIMPLEST FORM WHEN...

- ☆ NO perfect square factors other than 1 are under the radical.
- ☆ NO fractions are under the radical
- ☆ NO radicals are in the denominator

What is the prime factorization of each number?

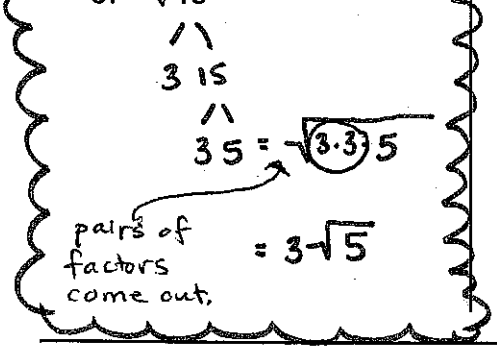
1. 54



2. 98

Simplify:

3. $\sqrt{45}$



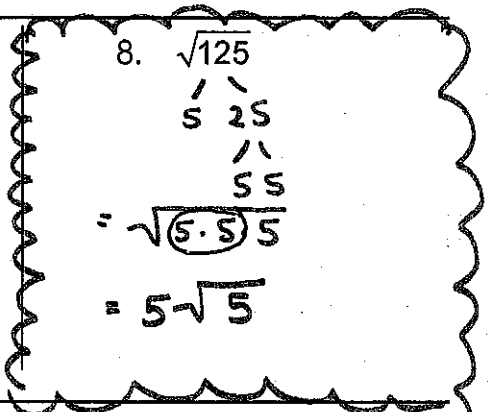
4. $\sqrt{20}$

5. $\sqrt{12}$

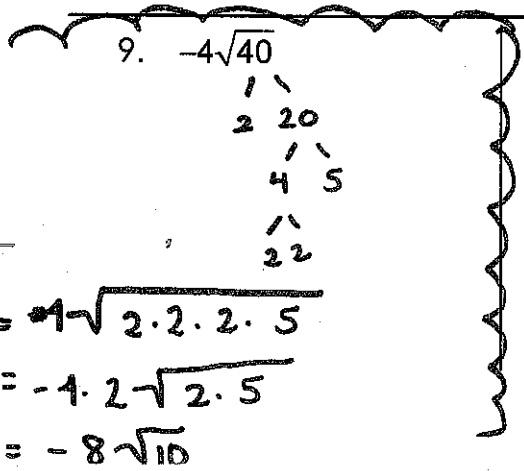
6. $\sqrt{50}$

7. $\sqrt{200}$

8. $\sqrt{125}$



9. $-4\sqrt{40}$



10. $\sqrt{99}$

11. $\sqrt{108}$

SIMPLIFYING VARIABLES AS RADICANDS

- ☆ **Even Exponents** – Take half of the exponent OUTSIDE the radical and leave NOTHING under the radical sign
- ☆ **Odd Exponents** – Leave ONE exponent UNDER the radical and take HALF of the rest OUTSIDE the radical sign

12. $\sqrt{x^6}$

$= \sqrt{(x \cdot x) \cdot (x \cdot x) \cdot (x \cdot x)}$

$= x^3$

again, pairs come out

13. $\sqrt{49x^5}$

$= \sqrt{(7 \cdot 7) \cdot (x \cdot x) \cdot (x \cdot x) \cdot x}$

$= 7x^2\sqrt{x}$

14. $\sqrt{36y^4}$

15. $\sqrt{16x^2}$

16. $\sqrt{a^3b^5}$

17. $\sqrt{18x^7y^4}$

18. $\sqrt{90x^5y}$

19. $-2\sqrt{24x^2y^9}$

$= -2\sqrt{(2 \cdot 2) \cdot 2 \cdot 3 \cdot (x \cdot x) \cdot (y^4 \cdot y^4) \cdot y}$

$= -2 \cdot 2 \cdot x \cdot y^4 \sqrt{2 \cdot 3 \cdot y}$

$= -4xy^4\sqrt{6y}$

20. $-2\sqrt{15x^2y^8}$

21. $\sqrt{196x^7y^8}$

22. $\sqrt{450c^5}$

23. $3\sqrt{48y^{12}}$